

Object Form

Appendix 1

Runway Safety Area Data Sheet

ADQ

The diagram illustrates the layout of a runway and its associated safety area. It consists of a central rectangular area labeled "RUNWAY" with a dashed centerline. This runway is flanked by a "Runway Safety Area" on both sides. The "Length" of the runway is indicated by a horizontal dimension line at the top right, and the "Width" is indicated by a vertical dimension line on the right side.

[illegible]

Appendix 2. Supporting Documentation for RSA Determinations

1. GENERAL.

RSA determinations must be supported by documentation that provides the rationale upon which the determination was based. The extent of the documentation will vary, depending upon the circumstances. For example, in cases where the RSA already meets the current standards through a traditional graded area surrounding the runway a simple statement to this effect will suffice. Where declared distances have been implemented to obtain the RSA, the documentation would contain a statement to this effect and also identify the graded area that exists beyond each runway end. In contrast, in cases where it is not practicable to improve a safety area to meet current standards, the documentation must address the alternatives that were considered and explain the reasons why one was selected over the others.

2. CONSIDERATIONS IN EVALUATING ALTERNATIVES.

In evaluating alternatives for obtaining or improving RSAs, there are many factors that could affect the viability of the alternative. What may be viable at one airport may not be viable at another. Factors to be considered include:

- a. Historical records of airport accidents/incidents.
- b. The airport plans as reflected in current and forecast volume of passengers, number of operations, design aircraft and percent runway use, both for all weather and IFR operations,
- c. The extent to which the existing RSA complies with the standard. High performance aircraft, operating at higher loads and speeds have greater requirements than small, low performance aircraft.
- d. Site constraints. These include, for example, precipitous terrain drop-off, the existence of bodies of water, wetlands, a major highway, a railroad at a runway end, etc.
- e. Weather and climatic conditions. These include conditions such as low visibility, rain, snow, and ice and the frequency of these conditions. Overruns on contaminated runways constitute a significant percentage of runway excursions.
- f. Availability of visual and electronic aids for landing.

3. ALTERNATIVES TO BE CONSIDERED.

The first alternative to be considered in every case is constructing the traditional graded area surrounding the runway. Where it is not practicable to obtain the entire safety area in this manner, as much as possible should be obtained. Then, the following alternatives shall be addressed in the supporting documentation. The applicability of these alternatives will vary, depending on the location.

- a. Relocation, shifting, or realignment of the runway.
- b. Reduction in runway length where the existing runway length exceeds that which is required for the existing or projected design aircraft,

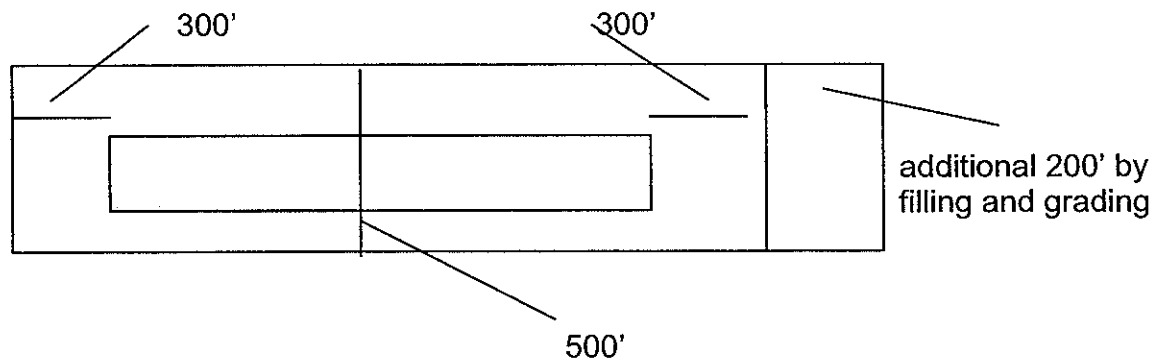
- c. A combination of runway relocation, shifting, grading, realignment, or reduction
- d. Declared distances.
- e. Engineered Materials Arresting Systems (EMAS).

4. CONSIDERATIONS IN ASSESSING ALTERNATIVES.

When making determinations about the practicability of obtaining the RSA, the first attempt shall consist of investigating fully the possibility of obtaining RSA that meets the current standards through a traditional graded area surrounding the runway. Land acquisition, grading requirements as well as environmental conditions must be examined. Any portion of land that will increase the RSA, even if it is but an incremental increase (see Paragraph 4a below) and will not result in meeting the standard fully, is preferable and will serve as a starting point for the consideration of additional alternatives (see paragraphs 4b through 4f below).

a. Incremental gains must be obtained whenever possible. The gain may be relatively very little, but any gain is valuable. The following example illustrates this.

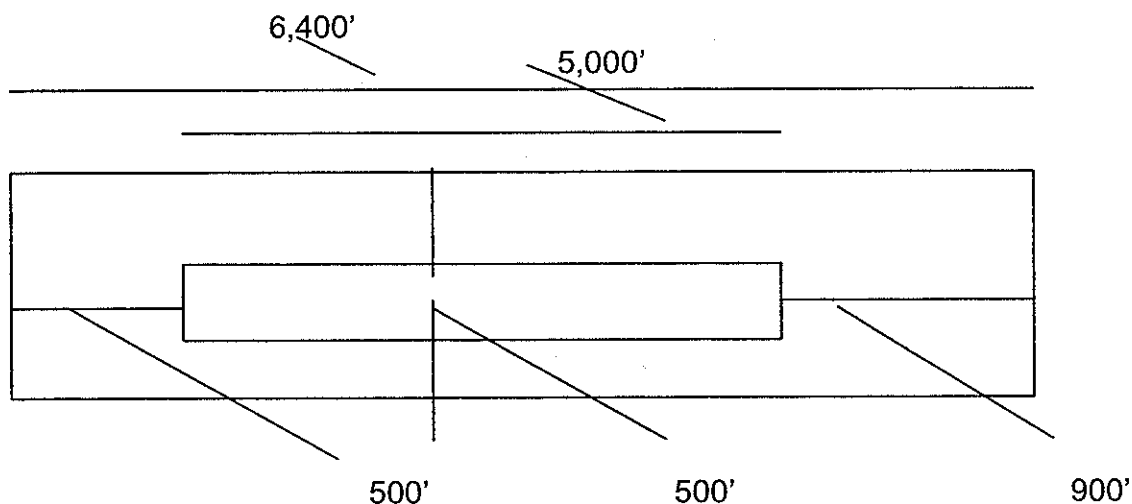
The design standard for an RSA beyond the runway end, 1,000' by 500', is not met. The dimensions are 300' by 500' on each of the ends. By filling and grading, another 200' could be gained on one end. This should be accomplished as an incremental gain, even though it will not provide the design standard. Other alternatives (see Paragraphs 4b through 4f below) would then be considered for obtaining the remainder of the safety area.



b. When obtaining a standard RSA is not practicable through traditional means (e.g. land acquisition, grading, fill, etc.), alternatives must be explored. During some types of projects, it may be feasible to relocate, realign, shift, or change a runway in such a way that the RSA may be obtained. It is recognized that the costs of this kind of adjustment may be justified only in an extensive project, but the concept should be evaluated to determine if it is a practicable alternative.

c. Another alternative to be addressed is a reduction in runway length. This is a viable option if the current critical aircraft requires less than what is presently available, or the use of other runways, if available, will accommodate the larger aircraft.

d. When considering the configuration of RSA, if the total RSA area available is less than the total required to meet the design standard, an appropriate balance may be achieved by allocating a greater portion of RSA to one runway end. The factors to consider in this allocation are: nav aids (ILS, PAPI, PLASI, VASIs), which provide vertical guidance and lessen the likelihood of an undershoot; predominant direction of runway use by air carrier aircraft, and historical data on overruns on the runway. For example, the total available RSA below is 1400'. Because there is an ILS for air carrier use, a determination is made to allocate 900' to the departure end of this runway and 500' to the approach end of the runway

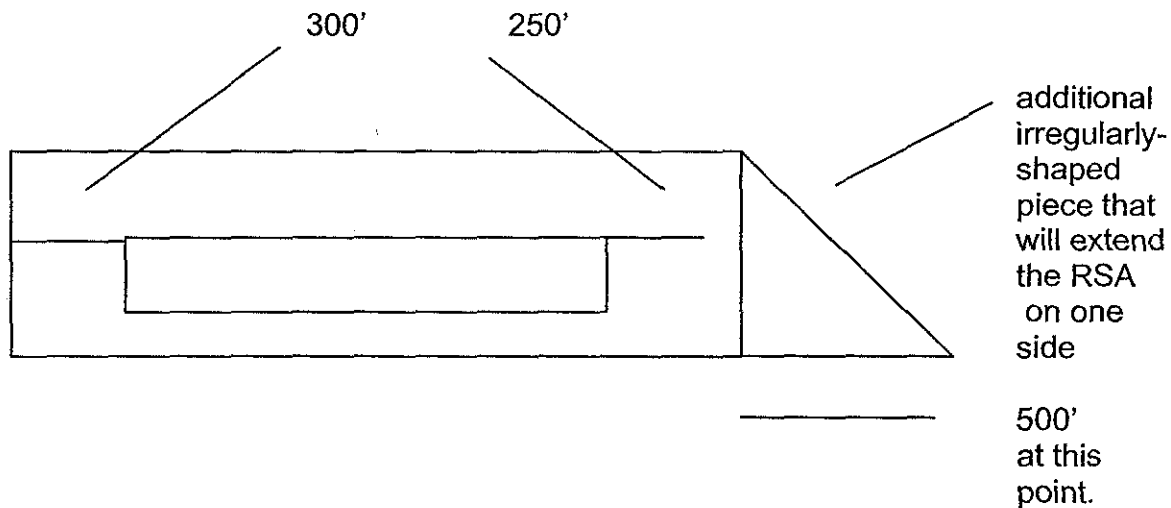


ILS is located on this end of the runway

e. Declared distances present another alternative that may provide an acceptable means of providing RSA. This requires a thorough understanding of user needs and views, since their cooperation is an integral factor in selecting this alternative. However, the airport, in conjunction with FAA, will determine the final disposition of this type of situation.

f. At any time, when it is not practicable to obtain a safety area that meets current standards, consideration should be given to enhancing the safety of the area beyond the runway end with the installation of EMAS. The AC 150/5220-22, *Engineered Materials Arresting Systems (EMAS) for Aircraft Overruns*, pertaining to the installation and use of EMAS, provides details on design to be considered in determining feasibility of this alternative.

g. When it is not practicable to obtain an RSA that meets current standards through the measures identified in Paragraphs 4a through 4e, the feasibility of increasing the size of the RSA by including additional land parcels should be considered, even if their inclusion will result in an RSA with an irregular shape. This alternative should be explored, irrespective of a decision to install EMAS in the RSA. For example, the design standard for an RSA beyond the runway end is not met. However, a parcel of land is available and would lengthen the RSA on one side only. This should be accomplished and noted in the comment section provided in the database. The following example illustrates this.



APPENDIX B

AGENCY COORDINATION

September 26, 2002

David Rackley
National Marine Fisheries Service
219 Fort Johnson Rd.
Charleston, SC 29412-9110

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT
MONROE COUNTY, FLORIDA**

Dear Mr. Rackley:

On behalf of the Monroe County Board of County Commissioners (County) and the Federal Aviation Administration (FAA), URS Corporation is conducting a feasibility study for providing a standard Runway Safety Area (RSA) for Runway 9/27 at the Key West International Airport (Airport). A standard RSA is an area around a runway that consists of a graded surface suitable for reducing the risk of aircraft damage in the event of an undershoot, overshoot, or excursion from the paved runway surface. The existing RSA at the Airport does not meet FAA requirements and design standards.

At this time, the County and FAA are investigating the feasibility of providing a full, standard RSA at the Airport. Given the airport's physical setting, the scope of this feasibility study is focused on the potential to obtain necessary environmental permits and the probable magnitude and cost of potential wetland mitigation.

As you have previously discussed with Mr. George Feher of URS, the ability to identify permit issues and evaluate conceptual mitigation scenarios depends greatly on your agency's early input and consultation. In this regard, we look forward to your attendance at a meeting on October 9, 2002, at the South Florida Water Management District's West Palm Beach office, located at 3301 Gun Club Road. The meeting is scheduled for 1:30 p.m. Other agencies, including the US Fish and Wildlife Service, US Army Corps of Engineers, and the FAA, have been invited to attend.

For your information, I have enclosed an attachment that depicts an overview of the standard RSA proposed at the airport. We will provide additional diagrams and information at our meeting for your consideration and input on permit issues and probable mitigation requirements.

URS Corporation
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Mr. David Rackley
September 26, 2002
Page 2

We appreciate your time and consultation on this matter.

Sincerely,

URS CORPORATION



Peter M. Green, AICP
Project Manager

Enclosure

Copy: Mr. Peter Horton, Monroe County/Key West International Airport (w/ enclosure)
Mr. Bart Vernace, Federal Aviation Administration (w/ enclosure)
Mr. Mil Reisert, URS Corporation (w/ enclosure)
Mr. George Feher, URS Corporation (w/ enclosure)



September 26, 2002

Allen Webb
Fish and Wildlife Biologist
South Florida Ecological Services Office
1339 20th Street
Vero Beach, FL 32960 - 3559

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT STUDY
MONROE COUNTY, FLORIDA**

Dear Mr. Webb:

On behalf of the Monroe County Board of County Commissioners (County) and the Federal Aviation Administration (FAA), URS Corporation is conducting a feasibility study for providing a standard Runway Safety Area (RSA) for Runway 9/27 at the Key West International Airport (Airport). A standard RSA is an area around a runway that consists of a graded surface suitable for reducing the risk of aircraft damage in the event of an undershoot, overshoot, or excursion from the paved runway surface. The existing RSA at the Airport does not meet FAA requirements and design standards.

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Mr. Allen Webb
September 26, 2002
Page 2

We appreciate your time and consultation on this matter.

Sincerely,

URS CORPORATION


Peter M. Green, AICP
Project Manager

Enclosure

Copy: Mr. Peter Horton, Monroe County/Key West International Airport (w/ enclosure)
Mr. Bart Vernace, Federal Aviation Administration (w/ enclosure)
Mr. Mil Reisert, URS Corporation (w/ enclosure)
Mr. George Feher, URS Corporation (w/ enclosure)



September 26, 2002

Anita R. Bain
Sr. Supervising Environmental Analyst
Natural Resources Management Department
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT
MONROE COUNTY, FLORIDA**

Dear Ms. Bain:

On behalf of the Monroe County Board of County Commissioners (County) and the Federal Aviation Administration (FAA), URS Corporation is conducting a feasibility study for providing a standard Runway Safety Area (RSA) for Runway 9/27 at the Key West International Airport (Airport). A standard RSA is an area around a runway that consists of a graded surface suitable for reducing the risk of aircraft damage in the event of an undershoot, overshoot, or excursion from the paved runway surface. The existing RSA at the Airport does not meet FAA requirements and design standards.

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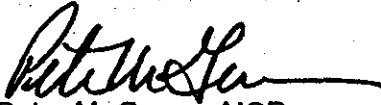
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Ms. Anita R. Bain
September 26, 2002
Page 2

We appreciate your time and consultation on this matter.

Sincerely,

URS CORPORATION



Peter M. Green, AICP
Project Manager

Enclosure

Copy: Mr. Peter Horton, Monroe County/Key West International Airport (w/ enclosure)
Mr. Bart Vernace, Federal Aviation Administration (w/ enclosure)
Mr. Mil Reiser, URS Corporation (w/ enclosure)
Mr. George Feher, URS Corporation (w/ enclosure)



September 26, 2002

Paul Kruger
US Army Corps of Engineers
Regulatory Division
Miami Field Office
Suite 104
11420 North Kendall Drive
Miami, Florida 33176-1039

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT
MONROE COUNTY, FLORIDA**

Dear Mr. Kruger:

On behalf of the Monroe County Board of County Commissioners (County) and the Federal Aviation Administration (FAA), URS Corporation is conducting a feasibility study for providing a standard Runway Safety Area (RSA) for Runway 9/27 at the Key West International Airport (Airport). A standard RSA is an area around a runway that consists of a graded surface suitable for reducing the risk of aircraft damage in the event of an undershoot, overshoot, or excursion from the paved runway surface. The existing RSA at the Airport does not meet FAA requirements and design standards.

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Mr. Paul Kruger
September 26, 2002
Page 2

We appreciate your time and consultation on this matter.

Sincerely,

URS CORPORATION



Peter M. Green, AICP
Project Manager

Enclosure

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Mr. Bart Vernace, Federal Aviation Administration (w/ enclosure)
Mr. Mil Reisert, URS Corporation (w/ enclosure)
Mr. George Feher, URS Corporation (w/ enclosure)



September 26, 2002

Andrew Gude
Fish and Wildlife Biologist
US Fish and Wildlife Service
Key Deer Visitors Center
Winn Dixie Plaza
Big Pine Key, Florida 33043

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT
MONROE COUNTY, FLORIDA**

Dear Mr. Gude:

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Mr. Andrew Gude
September 26, 2002
Page 2

We appreciate your time and consultation on this matter.

Sincerely,

URS CORPORATION



Peter M. Green, AICP
Project Manager

Enclosure

Copy: Mr. Peter Horton, Monroe County/Key West International Airport (w/ enclosure)
Mr. Bart Vernace, Federal Aviation Administration (w/ enclosure)
Mr. Mil Reisert, URS Corporation (w/ enclosure)



September 26, 2002

Ms. Audra Livergood
National Marine Fisheries Service
11420 N. Kendall Drive, Suite 103
Miami, Florida 33176

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT
MONROE COUNTY, FLORIDA**

Dear Mr. Rackley:

On behalf of the Monroe County Board of County Commissioners (County) and the Federal Aviation Administration (FAA), URS Corporation is conducting a feasibility study for providing a standard Runway Safety Area (RSA) for Runway 9/27 at the Key West International Airport (Airport). A standard RSA is an area around a runway that consists of a graded surface suitable for reducing the risk of aircraft damage in the event of an undershoot, overshoot, or excursion from the paved runway surface. The existing RSA at the Airport does not meet FAA requirements and design standards.

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Ms. Audra Livergood
September 26, 2002
Page 2

We appreciate your time and consultation on this matter.

Sincerely,

URS CORPORATION


Peter M. Green, AICP
Project Manager

Enclosure

Copy: Mr. Peter Horton, Monroe County/Key West International Airport (w/ enclosure)
Mr. Bart Vernace, Federal Aviation Administration (w/ enclosure)
Mr. Mil Reisert, URS Corporation (w/ enclosure)
Mr. George Feher, URS Corporation (w/ enclosure)

October 23, 2002

Chris Hoberg, EAD-13
US Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, GA 30303-8960

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT
MONROE COUNTY, FLORIDA**

Dear Mr. Hoberg:

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For your information, I have enclosed a Project Information Package that provides an overview of the standard RSA proposed at the airport and potential wetland fill impacts.

We appreciate your time and consultation on this matter. Please call if you have any questions.

Sincerely,

URS CORPORATION



Peter M. Green, AICP
Senior Airport Environmental Planner

Enclosure

Copy: Mr. Peter Horton, Monroe County/Key West International Airport
Ms. Virginia Lane, Federal Aviation Administration
Mr. Mil Reisert, URS Corporation
Mr. George Feher, URS Corporation

URS Corporation
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October 23, 2002

Mr. Bill Kruczynski
US Environmental Protection Agency, Region 4
Post Office Box 500368
Marathon, Florida 33050

**RE: RUNWAY SAFETY AREA FEASIBILITY STUDY
KEY WEST INTERNATIONAL AIRPORT
MONROE COUNTY, FLORIDA**

Dear Mr. Kruczynski:

On behalf of the Monroe County Board of County Commissioners (County) and the Federal Aviation Administration (FAA), URS Corporation is conducting a feasibility study for providing a standard Runway Safety Area (RSA) for Runway 9/27 at the Key West International Airport (Airport). A RSA is an area around a runway that consists of a graded surface suitable for reducing the risk of aircraft damage in the event of an undershoot, overshoot, or excursion from the paved runway surface. The existing RSA at the Airport does not meet FAA requirements and design standards.

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Peter M. Green, AICP
Senior Airport Environmental Planner

Enclosure

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Mr. Mil Reisert, URS Corporation
Mr. George Feher, URS Corporation

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